Traffic Impact Study

West Hartford Fellowship Housing

West Hartford, CT

May 2019

Prepared for:

Paul B. Bailey Architect, LLC

Prepared by:

BSC GROUP
300 Winding Brook Drive
Glastonbury, CT 06033
(860) 652-8227
www.bscgroup.com

Executive Summary

BSC Group (BSC) has prepared this Traffic Impact Study to evaluate the potential traffic impacts associated with the redevelopment of the West Hartford Fellowship Housing age-restricted housing complex, located off Starkel Road in West Hartford, Connecticut. The redevelopment will demolish the existing 213-unit complex and construct a new 308-unit development. A total of 287 parking spaces will be provided on site. Access to the parking will be provided by two full-access curb cuts located along the east/north side of Starkel Road. A pick-up/drop off area is also proposed along Starkel Road.

This study includes a review of existing traffic and roadway conditions in the vicinity of the project site, as well as a review of the motor vehicle crash history at study area intersections. This report identifies background traffic growth for study area roadways, estimates additional traffic generated by the industrial park, and evaluates potential traffic impacts due to Project-generated traffic.

The Proponent is currently coordinating with the Connecticut Department of Transportation (ConnDOT) and the Town of West Hartford. To date, ConnDOT has approved the usage of the traffic volume data and growth rates that form the basis of the analysis contained in this traffic study. The Town of West Hartford is also in concurrence with the scope of the study and selected study area based on conversations at a project-related meeting held on March 24, 2019.

This study shows that:

- The proposed Project is expected to generate approximately 19 new vehicle trips (7 entering, 12 exiting) during the weekday morning peak hour, 25 vehicle trips (14 entering, 11 exiting) during the weekday afternoon peak hour, and 32 trips (20 entering, 12 exiting) during the Saturday midday peak hour when compared with the 2024 Background condition.
- On an average weekday, the Project will generate approximately 1,140 trips. This represents an increase of 352 trips when compared to the existing conditions.
- On a Saturday, the Project will generate approximately 995 trips, which represents an increase of 307 trips when compared to the existing conditions.
- Compared to the Background condition, the study area intersections serving the Project are expected to operate at the same LOS under the Combined condition.

- Both required stopping sight distance and recommended intersection sight distances are met at both driveway locations.

In conclusion, it is the opinion of BSC Group that the vehicle trips generated by the proposed expansion of the Project can be accommodated at the study area intersections and roadways without the need for additional mitigation.

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Chapter 1 Existing Conditions

BSC Group (BSC) has prepared this Traffic Impact Study to evaluate the potential traffic impacts associated with the proposed redevelopment of the West Hartford Fellowship Housing apartment complex located off Starkel Road in West Hartford, Connecticut.

This study includes a review of existing traffic and roadway conditions in the vicinity of the project site and the accident history at study area intersections. This report identifies background traffic growth for study area roadways, estimates additional traffic generated by the Project, and evaluates potential traffic impacts due to Project-generated traffic.

The Proponent is currently coordinating with the Connecticut Department of Transportation (ConnDOT) and the Town of West Hartford. To date, ConnDOT has approved the usage of the traffic volume data and growth rates that form the basis of the analysis contained in this traffic study. The Town of West Hartford is also in concurrence with the scope of the study and selected study area based on conversations at a project-related meeting held on March 24, 2019.

1.1 Project Background

The Project consists of the redevelopment of the West Hartford Fellowship Housing age-restricted housing complex, located off Starkel Road in West Hartford, Connecticut. The redevelopment will demolish the existing 213-unit complex and construct a new 308-unit development. A total of 287 parking spaces will be provided on site. Access to the parking will be provided by two full-access curb cuts located along the east/north side of Starkel Road. A pick-up/drop off area is also proposed along Starkel Road.

1.2 Study Area Intersections

The study area for the traffic impact analysis includes the following intersections in the vicinity of the project site:

- Albany Avenue (US Route 44) at North Main Street (CT Route 218)
- Albany Avenue at Starkel Road
- North Main Street at Starkel Road

The location of the site in relation to the surrounding roadway network is shown in Figure 1.

1.3 Existing Roadway Conditions

Albany Avenue (US Route 44)

Albany Avenue is a two-way, four-lane principal urban arterial under ConnDOT jurisdiction that travels through the study area in an east-west direction. Albany Avenue is designated as United States Route 44, which spans the length of Connecticut between the New York State Line in Salisbury and the Rhode Island State Line in Putnam. Albany Avenue consists of two travel lanes in each direction, with additional turn lanes at major intersections. Sidewalks are provided along both sides of the roadway within the study area.

North Main Street

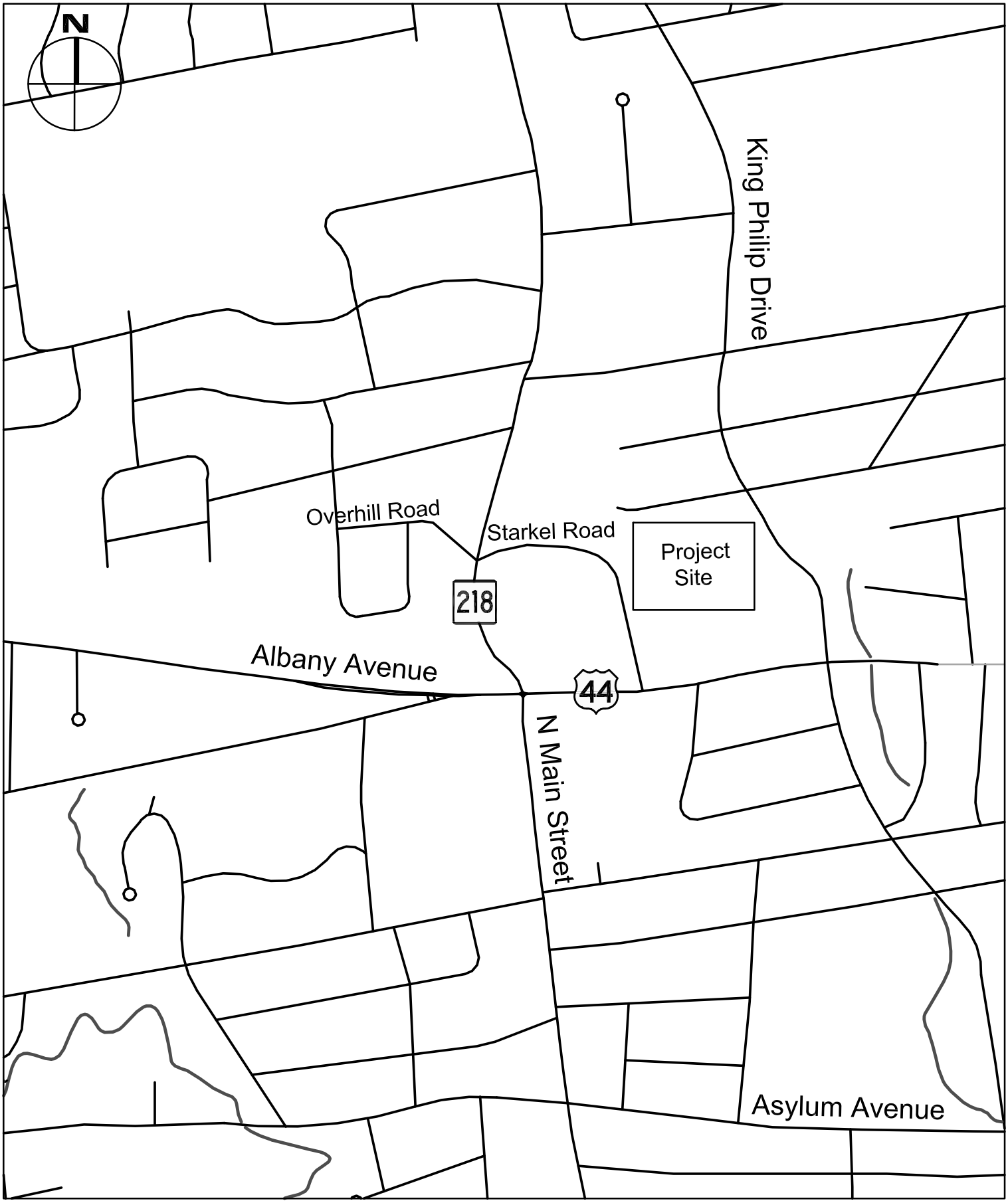
North Main Street is a two-way, two to four lane secondary urban arterial that travels through the study area in a north-south direction. North of Albany Avenue, North Main Street is a two-lane, two-way roadway designated as Connecticut State Route 218 and is under ConnDOT jursidction. South of Albany Avenue, North Main Street is a four-lane, two-way roadway under the jurisdiction of the Town of West Hartford. Sidewalks are provided along both sides of the roadway within the study area.

Starkel Road

Starkel Road is a two-way, two-lane local roadway under the jurisdiction of Town of West Hartford. Starkel Road provides access to the site and travels between Albany Avenue and North Main Street. Starkel Road also provides access to the retail plaza in the northeast quadrant of the Albany Avenue/North Main Street intersection. A series of four crosswalks provide pedestrian access between the retail plaza and the project and other properties along the north side of Starkel Road.

The crosswalks along Starkel Road were the subject of a Pedestrian Safety Petition[1] that reviewed safety issues and potential improvements to enhance the existing crosswalks. Considerations for enhancements include upgrades to signage, evaluating no-parking areas, installation of islands, raised crosswalks, and the installation of rectangular rapid flashing beacons (RRFBs).

[1] Pedestrian Safety Petition – Starkel Road Crosswalks; Town of West Hartford Department of Community Services; September 12, 2018.



Project Locus
West Hartford Fellowship Housing
West Hartford, CT

Figure 1
Not to Scale

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1.4 Existing Intersection Conditions

Albany Avenue at North Main Street

Albany Avenue and North Main Street intersect to form a four-legged, signalized intersection located southwest of the Project site. The Albany Avenue eastbound and westbound approaches each consist of an exclusive left-turn lane, two through lanes, and an exclusive channelized right-turn lane. The North Main Street northbound approach consists of an exclusive left-turn lane, a through lane, and a shared through/right-turn lane. The North Main Street southbound approach consists of an exclusive left-turn lane, two through lanes, and an exclusive right-turn lane. All right-turns at the intersection are channelized by islands. Pedestrian signal equipment, crosswalks, and curb ramps are provided across all legs of the intersection.

The intersection was the subject of a Road Safety Audit (RSA) conducted in March 2016[2]. The RSA provided short-term, mid-term, and long-term recommendations to improve safety at the intersection. The recommendations considered topics such as improved signage, modifications to the traffic and pedestrian signal operations, upgrades to pavement markings, removal of vegetation, and the reconstruction of the intersection.

Albany Avenue at Starkel Road and Commercial Driveway

Starkel Road intersects Albany Avenue from the north and a private commercial driveway intersects Albany Avenue from the south to form a four-legged, signalized intersection located south of the Project site. The Albany Avenue eastbound approach consists of a shared left-turn/through lane and a through lane. The Albany Avenue westbound approach consists of a through lane and a shared through/right-turn lane. The driveway northbound approach is one way entering the intersection and consists of a shared left-turn/through lane and an exclusive right-turn lane. The Starkel Road southbound approach consists of exclusive left-turn and right-turn lanes. Pedestrian equipment, crosswalks and curb ramps are provided for the west and north legs of the intersection.

North Main Street at Starkel Road and Overhill Road

Overhill Road intersects North Main Street from the west and Starkel Road intersects North Main Street from the east to form a four-legged signalized intersection located west of the Project site. All approaches consist of a single travel lane. However, the Starkel Road westbound approach is wide enough to accommodate left and right-turning vehicles and occasionally operates as a two-lane approach. Pedestrian equipment, crosswalks, and curb ramps are provided for all legs of the intersection.

[2] West Hartford Albany Avenue (U.S. Route 44) & North Main Street (Route 218) Bishops Corner – Road Safety Audit; AECOM; March 2016.

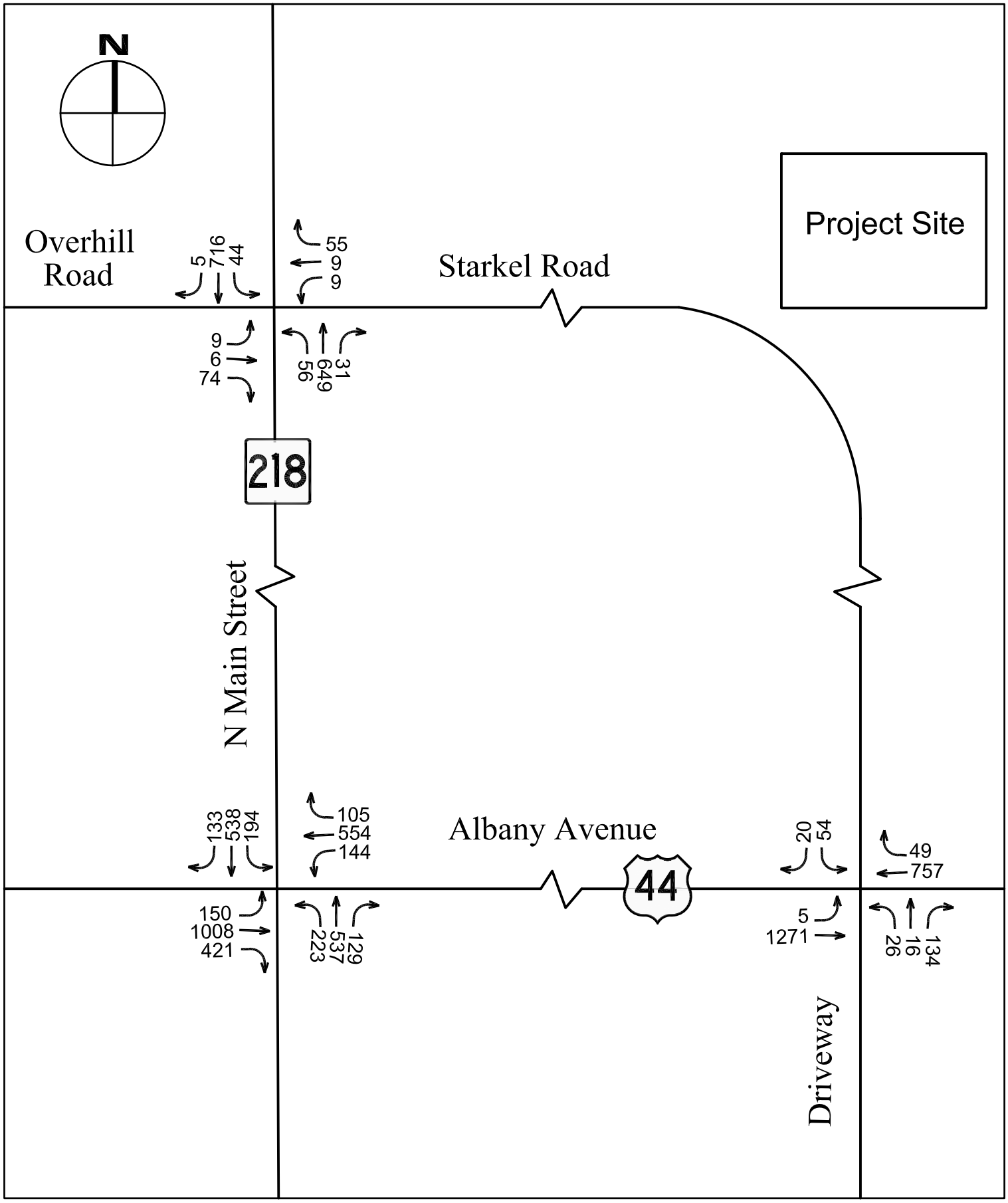
1.5 Existing Traffic Conditions

Existing traffic data was collected to establish a baseline condition for the analysis of the Project's traffic impacts.

Manual turning movement counts (TMCs) were conducted in April 2019 at the study area intersections for the weekday morning (7:00 to 9:00 AM), weekday evening (4:00 to 6:00 PM), and Saturday midday (11:00 AM to 1:00 PM) peak periods. The traffic volumes were submitted to and approved by the ConnDOT Bureau of Policy and Planning. The 2019 Existing weekday morning, weekday evening, and Saturday midday peak hour traffic volumes are shown on Figures 2 through 4.

Automatic traffic recorders (ATRs) were placed on Starkel Road to collect traffic volumes and vehicular speeds at locations west and south of the Project site. The ATRs collected data from April 5 – 10, 2019. Based on the ATR data, traffic volumes along Starkel Road range from around 1,400 vehicles per day (vpd) on a Saturday to 1,800 (vpd) on an average weekday. The 85th percentile vehicular speed along Starkel Road is 29 miles per hour (mph).

The detailed traffic data is provided in the Appendix.



2019 Existing Weekday AM Peak Hour Traffic Volumes
West Hartford Fellowship Housing
West Hartford, CT

Figure 2
Not to Scale

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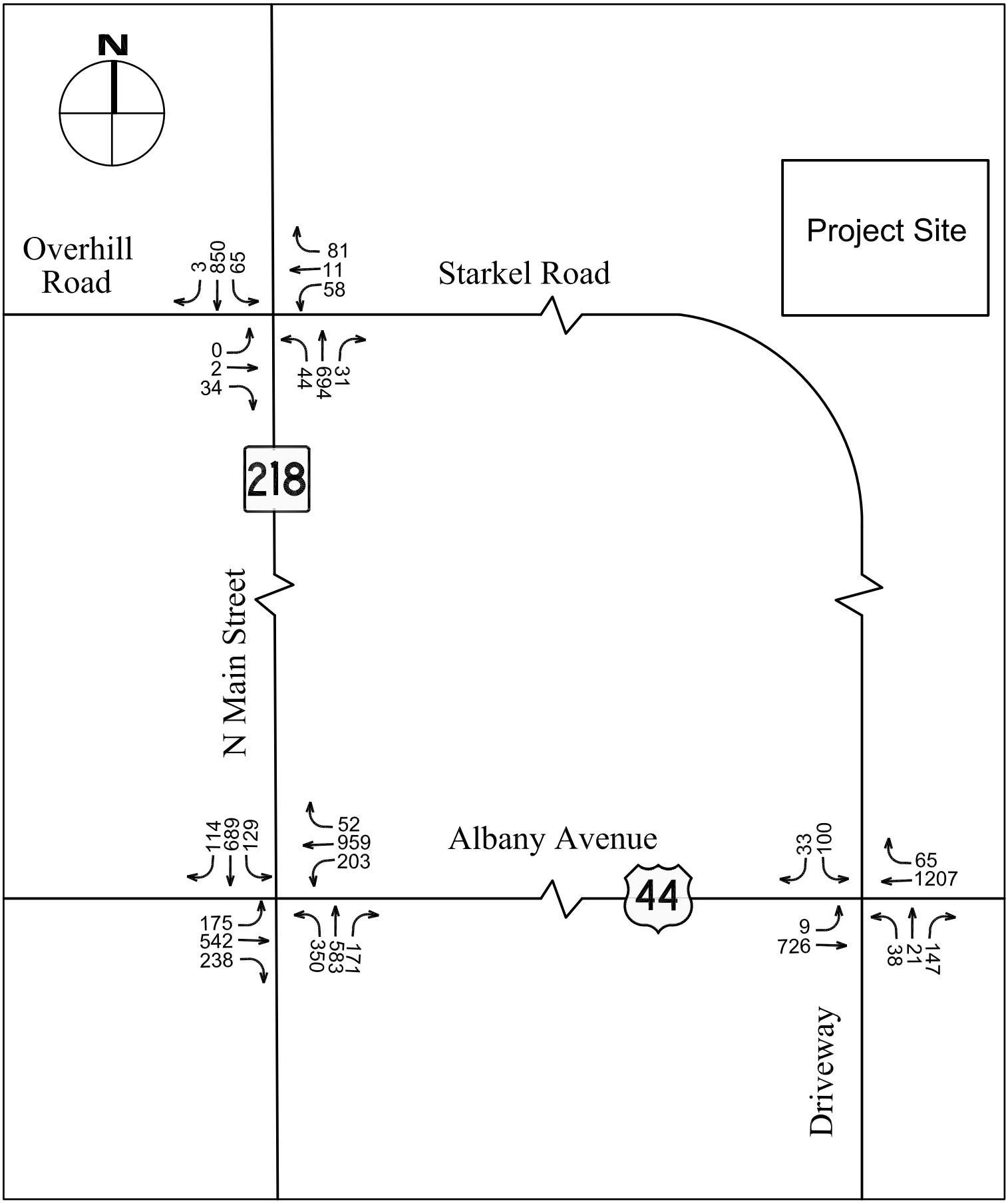

2019 Existing Weekday PM Peak Hour Traffic Volumes
West Hartford Fellowship Housing
West Hartford, CT

Figure 3
Not to Scale

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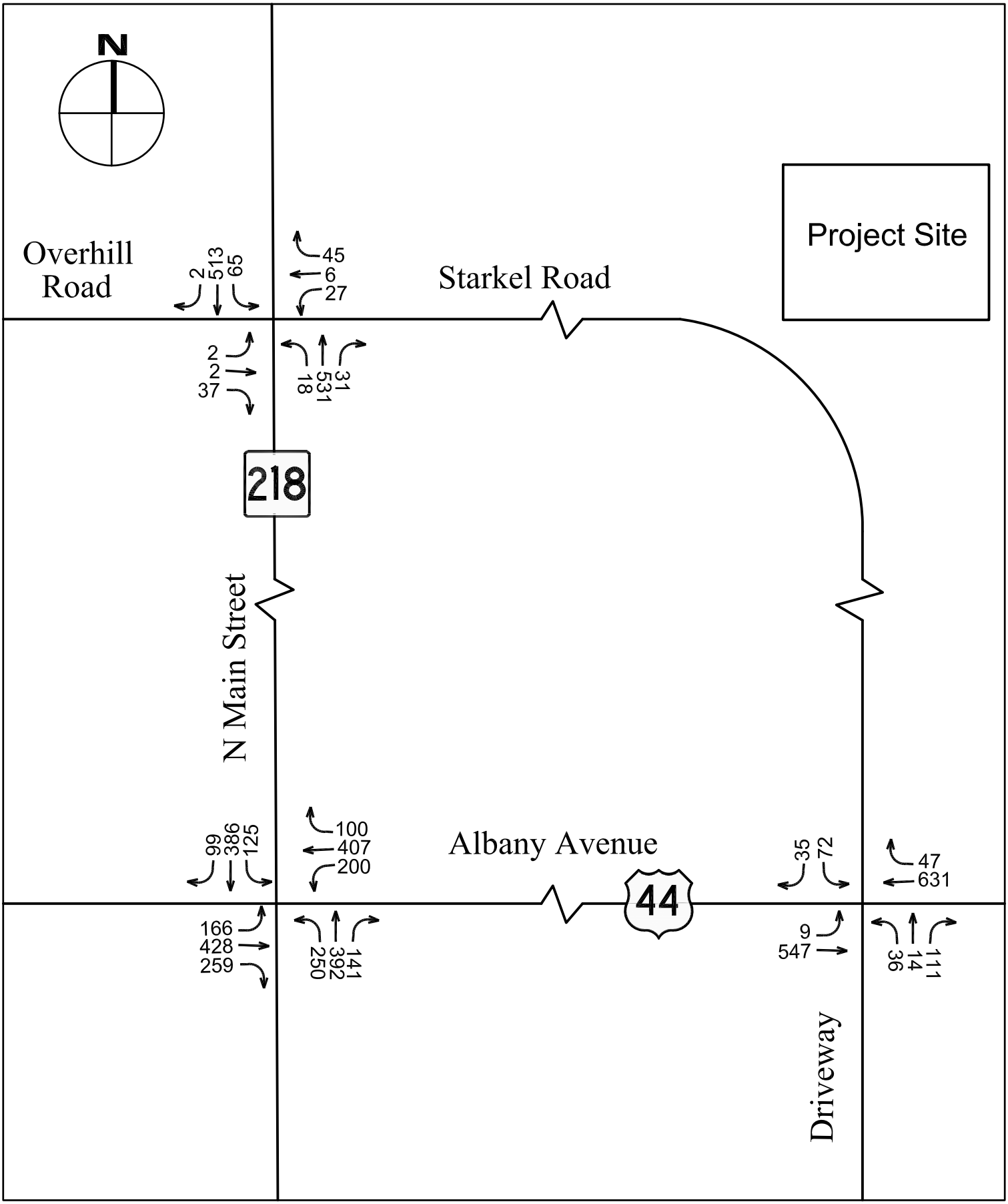

2019 Existing Saturday Midday Peak Hour Traffic Volumes
West Hartford Fellowship Housing
West Hartford, CT

Figure 4
Not to Scale

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1.6 Motor Vehicle Crash Data

Crash data were obtained from the UCONN Crash Repository for the most recent available four-year period (2015-2018). Partial data was also available for some of 2019. Table 1 below summarizes the number of crashes recorded at each of the study area intersections during this time period.

Table 1
Motor Vehicle Crash Data Summary

	Albany Avenue/ North Main Street	Albany Avenue/ Starkel Road	North Main Street/ Starkel Road/ Overhill Road
Total	***24***	***11***	***7***
Year			
2015	5	1	3
2016	7	2	2
2017	9	4	2
2018	3	1	0
2019	0	3	0
Severity			
Property Damage	16	6	3
Injury	8	5	4
Fatality	0	0	0
Collision Type			
Angle	8	4	1
Rear End	11	1	4
Head On	0	1	0
Sideswipe	4	2	0
Pedestrian	0	2	0
Other	1	1	2
Time			
AM Peak (7-9AM)	1	0	2
PM Peak (4-6 PM)	2	1	1
Weekday Other	19	9	3
Saturday Midday (11AM-1PM)	1	0	0
Weekend Other	1	1	1
Road Conditions			
Dry	18	10	5
Wet	6	1	2
Season			
Dec-Feb	5	5	1
Mar-May	5	4	0
Jun-Aug	6	1	2
Sep-Nov	8	1	4
Light			
Daylight	18	9	6
Dark (Lit)	5	1	1
Dusk	1	1	0

Source: UCONN Connecticut Crash Data Repository (MMUCC)

As shown in Table 1, a total of 24 motor vehicle crashes occurred at the intersection of Albany Avenue/North Main Street; 11 crashes occurred at the

intersection of Albany Avenue/Starkel Road; and 7 crashes occurred at the intersection of North Main Street/Starkel Road. The predominant types of crashes within the study area were angle and rear-end type collisions, which are typically the most common types at signalized intersections.

Chapter 2 Future Traffic Conditions

The Project will expand the existing West Hartford Fellowship Housing development to include a total of 308 age-restricted residential apartment units. This represents an increase of 95 units when compared to the existing facility (213 units). A total of 287 parking spaces will be provided on site in a surface lot that will surround the building on the north, south, and east sides. Access to the Project will continue to be provided by two driveways. The south driveway will be located in the approximate location of the existing driveway on the east side of Starkel Road, south of the bend in the roadway. The north driveway will be located along the north side of Starkel Road, just west of the bend in the roadway.

The Project's impacts were evaluated for the year 2024, which represents a five-year design horizon and incorporates new traffic due to potential growth in the area. The future scenario also considers the additional traffic expected to be generated by the Project. The following describes the development of the future condition scenarios.

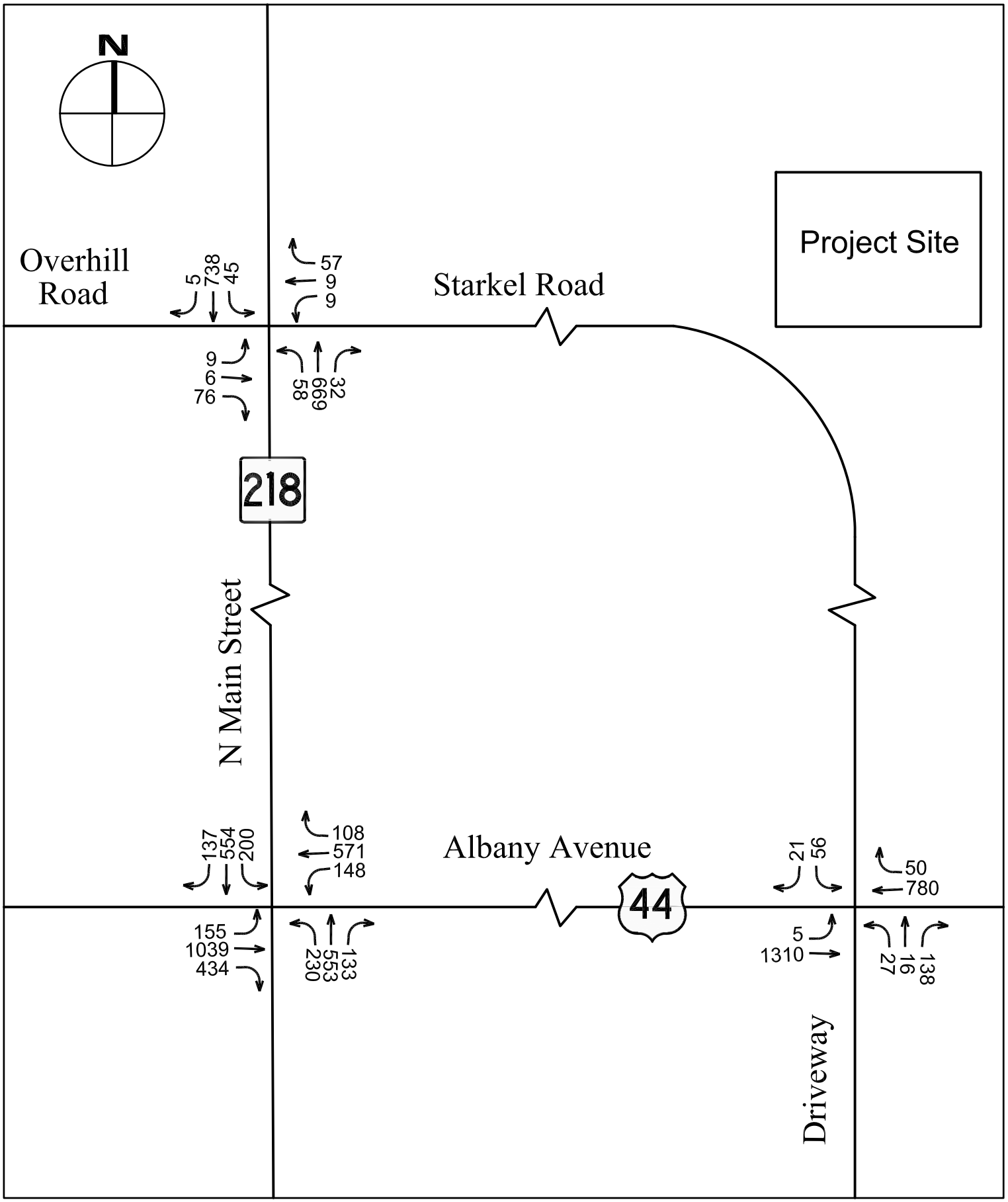
2.1 Future 2024 Background Condition

To evaluate traffic impacts associated with the proposed project, future Background Condition traffic volumes were estimated to provide a baseline condition for comparison. The Background Condition vehicular traffic volumes are those that are expected to use the roadway network in the future if the proposed expansion is not constructed. Future Background traffic volumes were calculated by adding general background growth to the existing traffic volumes.

2.1.1 General Background Growth

For the Background Condition analysis, an 0.6 percent annual rate of growth for traffic volumes was used to address background growth that is expected to occur over the next five years. This percentage was determined based on discussions with the ConnDOT's Policy & Planning Bureau. ConnDOT also indicated that there were no known additional developments pending in the area that would contribute to traffic volume growth.

The 2024 Background Condition traffic volumes are shown on Figures 5 through 7 for the weekday morning, weekday evening, and Saturday midday peak hours.



2024 Background Weekday AM Peak Hour Traffic Volumes
West Hartford Fellowship Housing
West Hartford, CT

Figure 5
Not to Scale

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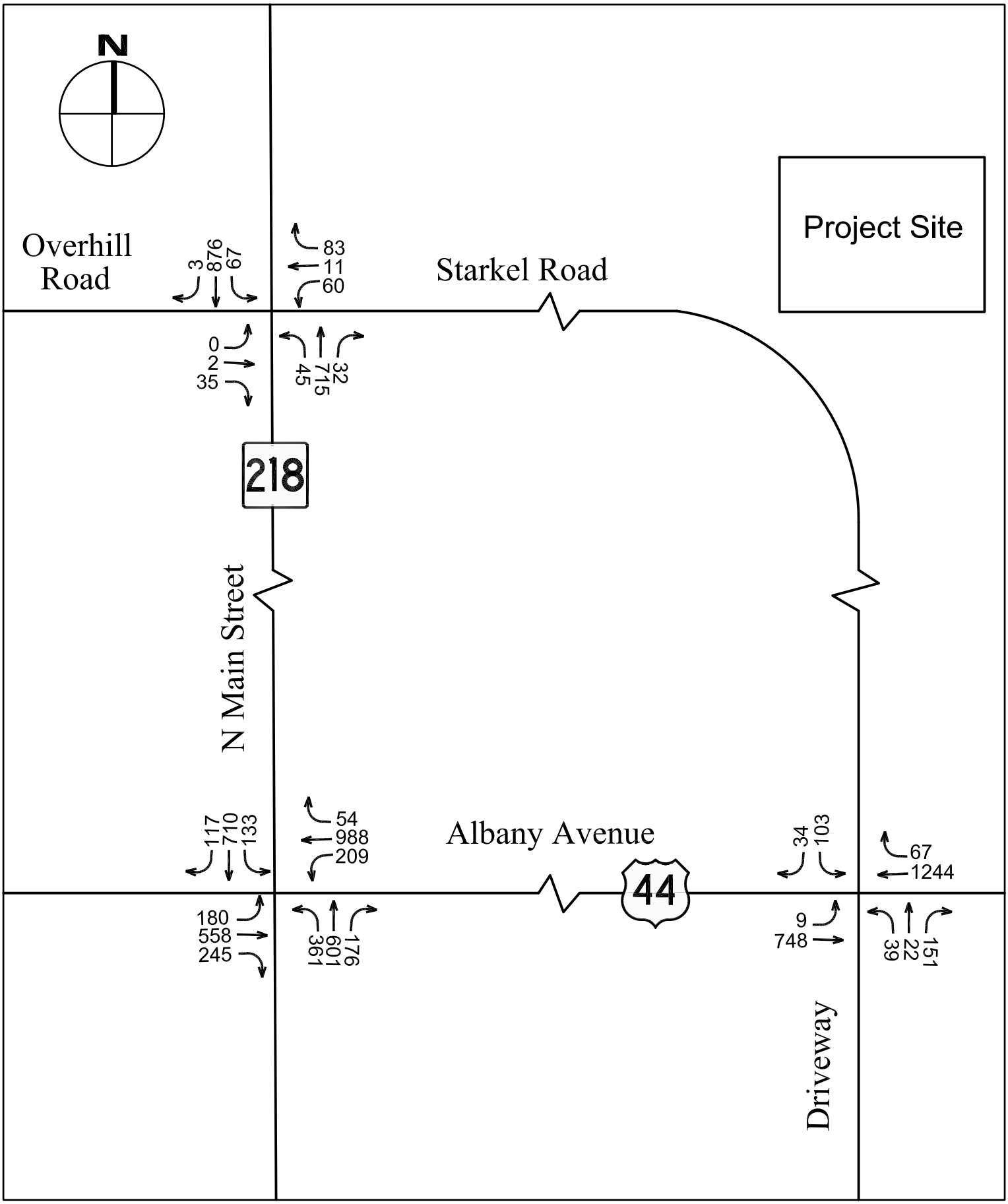

2024 Background Weekday PM Peak Hour Traffic Volumes
West Hartford Fellowship Housing
West Hartford, CT

Figure 6
Not to Scale

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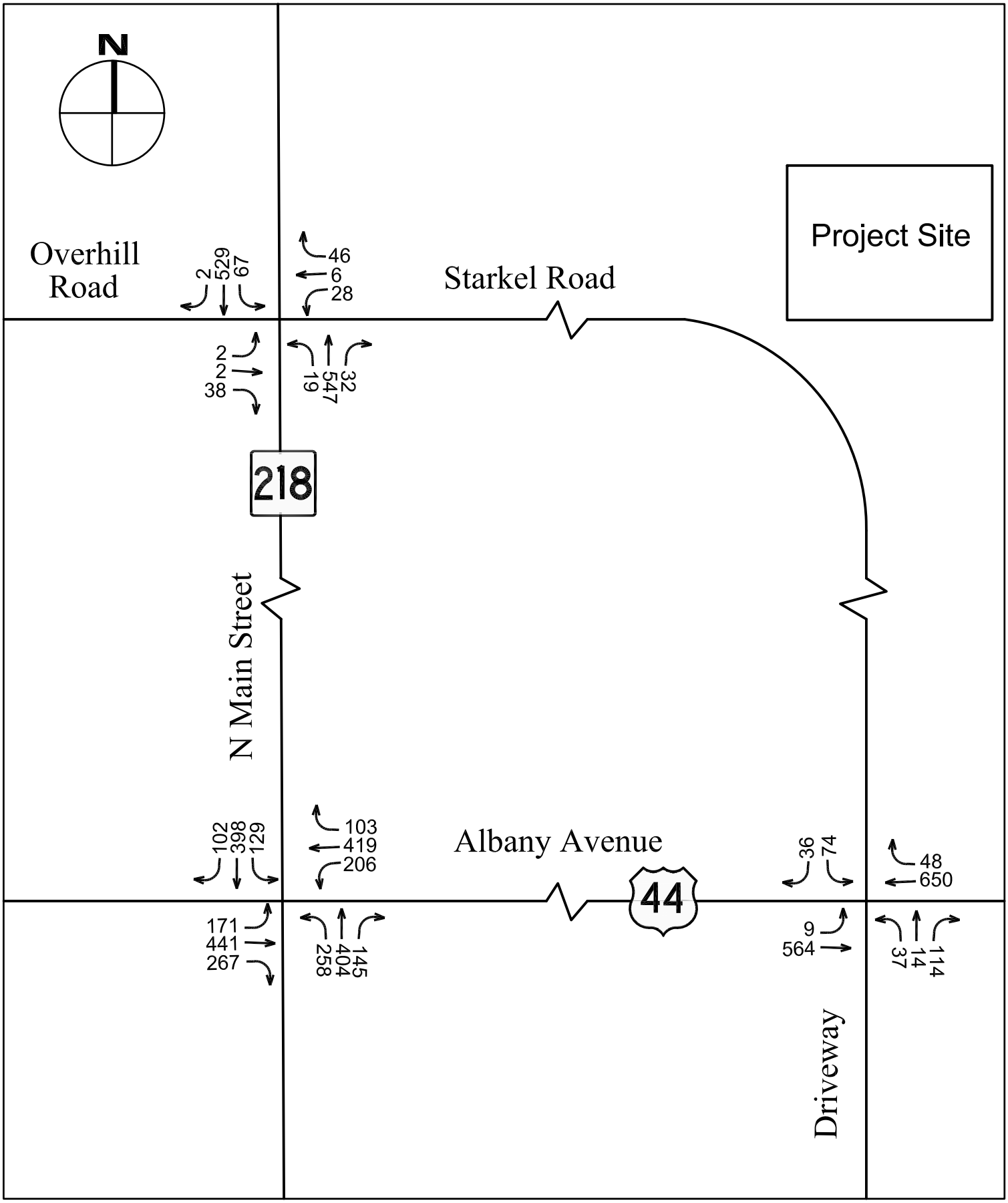

2024 Background Saturday Midday Peak Hour Traffic Volumes
West Hartford Fellowship Housing
West Hartford, CT

Figure 7
Not to Scale

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2.2 Future 2024 Combined Condition

The Future Combined Condition assumes the full build-out of the Project. The Project will consist of 308 age-restricted residential units, which is an increase of 95 units when compared to the existing facility. Trip generation estimates for the Project were estimated and assigned to the study area roadways and intersections. The trip estimates account for the net increase expected to be generated by the Project by accounting for the already existing vehicular trips being generated by the current uses on the site. The following sections describe the development of the Future Combined traffic volumes

2.2.1 Trip Generation

To estimate the trips generated by the Project, data from the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th edition, 2017) were used. The manual provides vehicle trip generation projections for several land uses, including Land Use Code (LUC) 252 – Senior Adult Housing (Attached). This LUC was selected based on discussions with ConnDOT and was determined to be the most appropriate for the Project. Table 2 summarizes the trip generation estimates associated with the full construction and occupation of the Project.

Table 2
Trip Generation Summary

Time Period	Existing Trips[1]	Full Build-Out Trips[2]	Net Change
Daily	788	1,140	+352
Weekday Morning Peak Hour			
Enter	15	22	+7
Exit	28	40	+12
Total	43	62	+19
Weekday Evening Peak Hour			
Enter	30	44	+14
Exit	25	36	+11
Total	55	80	+25
Saturday Daily	688	995	+307
Saturday Midday Peak Hour			
Enter	43	63	+20
Exit	27	39	+12
Total	70	102	+32

1 Based on ITE LUC 252 – Senior Adult Housing (Attached), 213 Units
2 Based on ITE LUC 252 – Senior Adult Housing (Attached), 308 Units

As shown in Table 2, the full build-out of the Project is expected to generate 1,140 trips on an average weekday, with 62 trips during the weekday morning

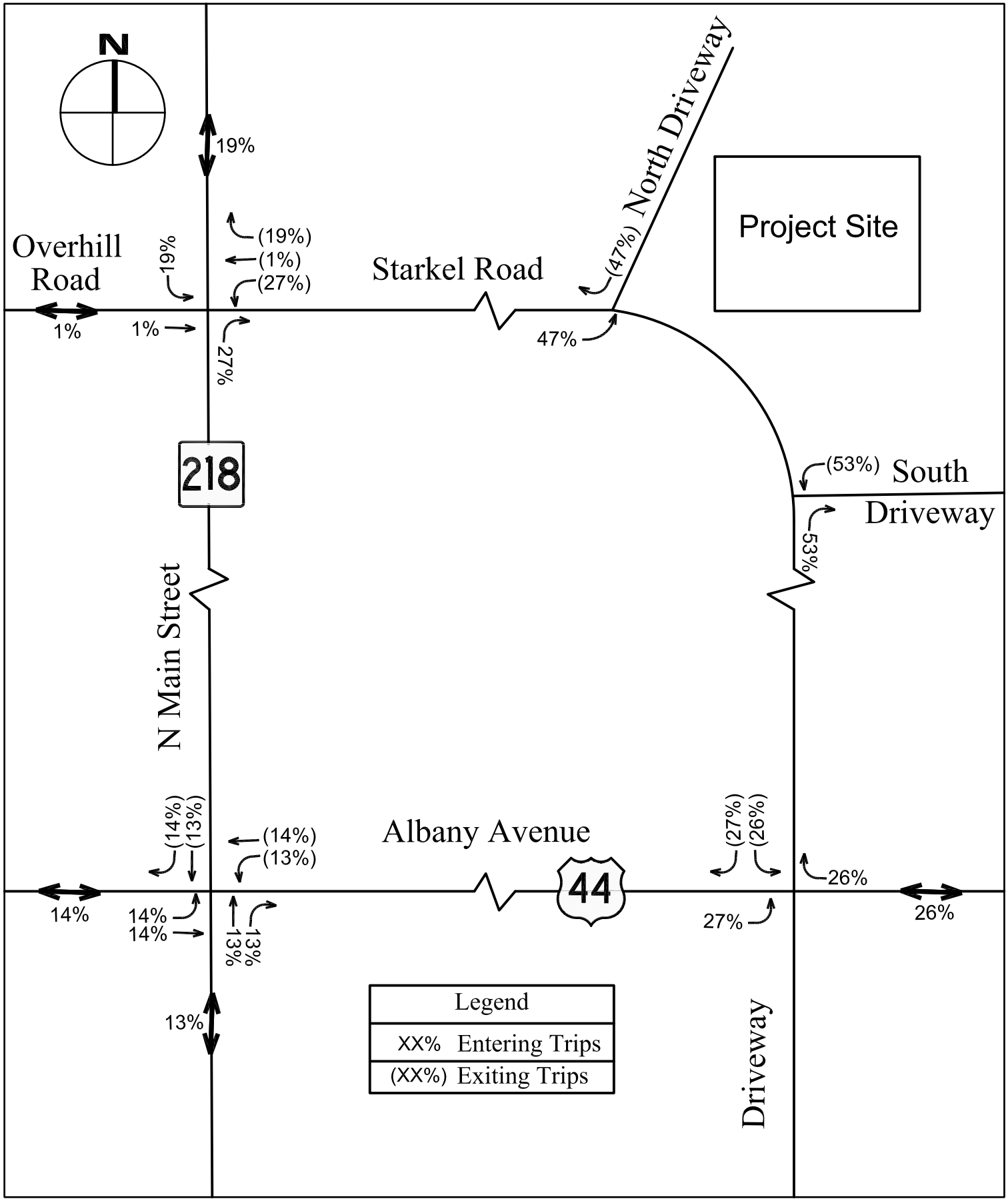
peak hour and 80 trips during the weekday evening peak hour. On a Saturday, the full-build out of the Project is expected to generate 995 trips, with 102 trips during the midday peak hour. When compared to the existing facility, this represents an increase of 352 trips on an average weekday, and increases of 19 and 25 trips during the weekday morning and evening peak hours, respectively. On a Saturday, there will be an increase of 307 trips, with an additional 32 trips during the midday peak hour.

Due to the nature of the location of the Project, it is expected that a portion of the trips will not be made by vehicle and would include walk trips to and from the nearby retail opportunities, senior center, and library at Bishops Corner. Further, additional shuttle buses and vans are provided for residents of the facility that will result in a reduction of vehicle trips.

2.2.2 Trip Distribution

To evaluate the traffic impacts of the Project in the study area, the net new Project generated trips were assigned to the adjacent roadway network. The incremental vehicle trips associated with the Project were distributed throughout the study area based on existing traffic patterns. The trip distribution patterns are shown on Figure 8 and the Project-generated trips are shown on Figures 9 through 11 for the weekday morning, weekday evening, and Saturday midday peak hours.

The 2024 Future Combined Condition peak hour traffic volumes, which consist of the addition of Project-generated traffic to the 2024 Background Condition peak hour traffic volumes, are displayed in Figures 12 through 14 for the weekday morning, weekday evening, and Saturday midday peak hours.



Trip Distribution Map
West Hartford Fellowship Housing
West Hartford, CT

Figure 8
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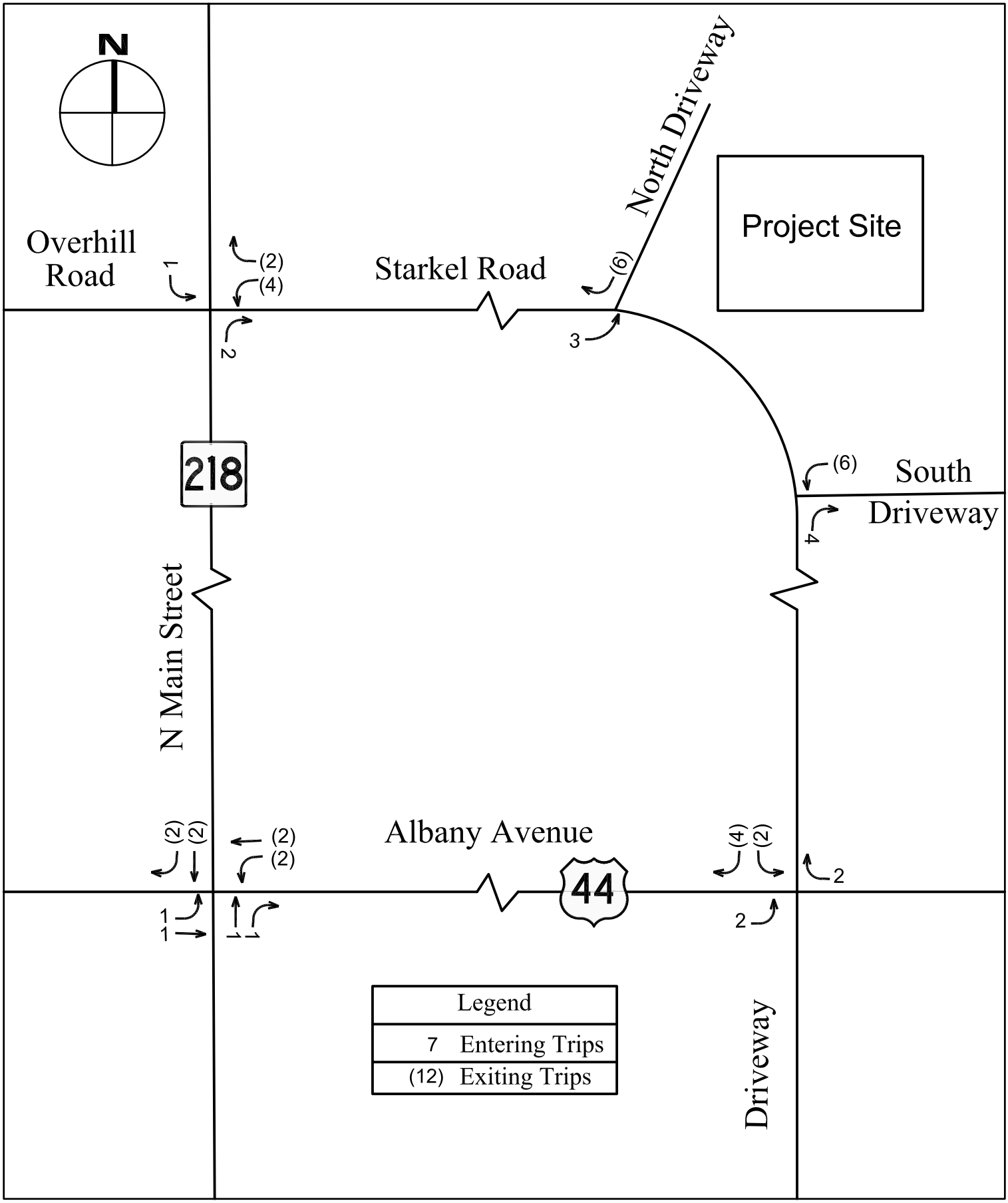

Project-Generated Weekday AM Peak Hour Traffic Volumes
West Hartford Fellowship Housing
West Hartford, CT

Figure 9
Not to Scale

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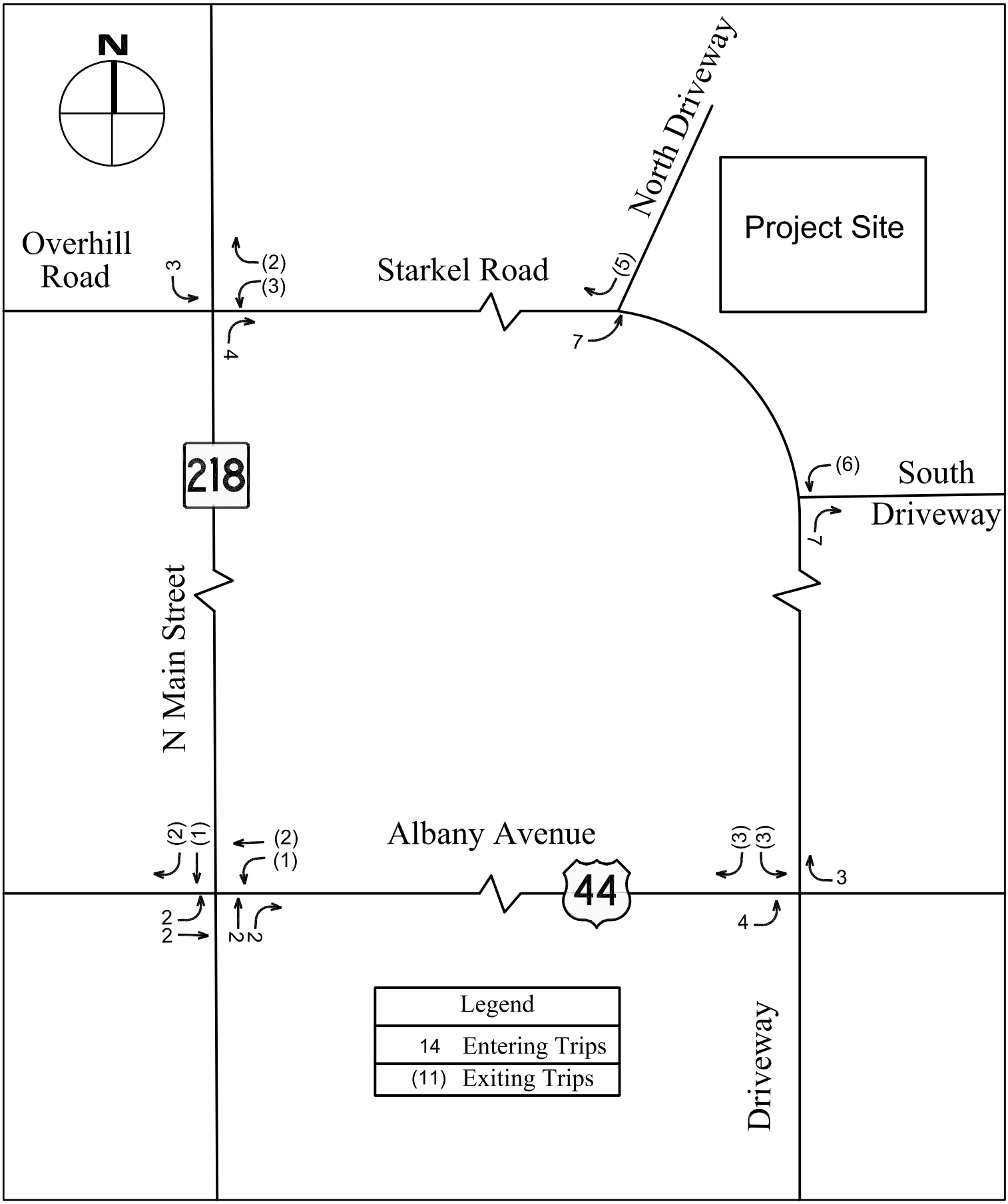

Project-Generated Weekday PM Peak Hour Traffic Volumes
West Hartford Fellowship Housing
West Hartford, CT

Figure 10
Not to Scale

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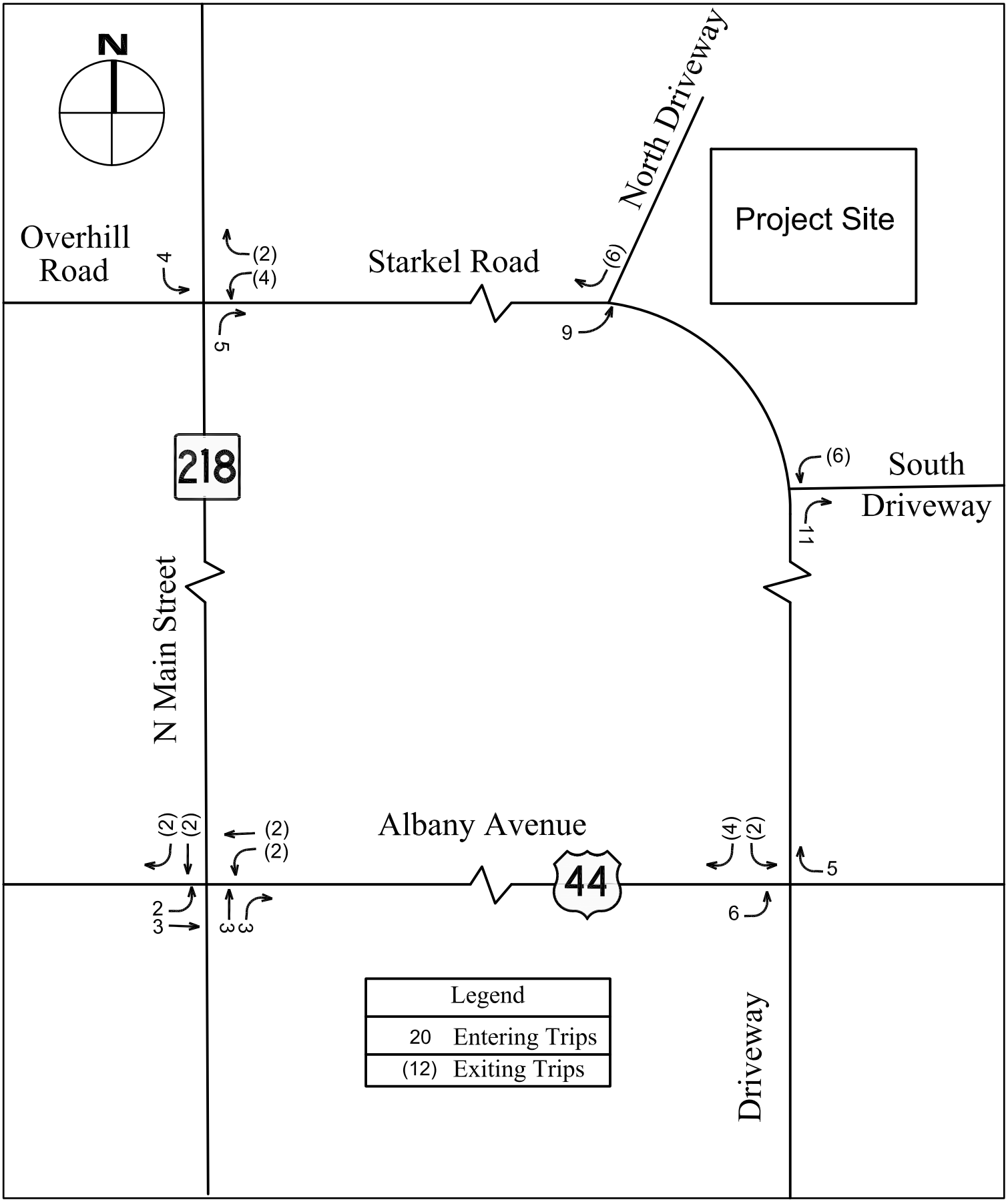

Project-Generated Saturday Midday Peak Hour Traffic Volumes
West Hartford Fellowship Housing
West Hartford, CT

Figure 11
Not to Scale

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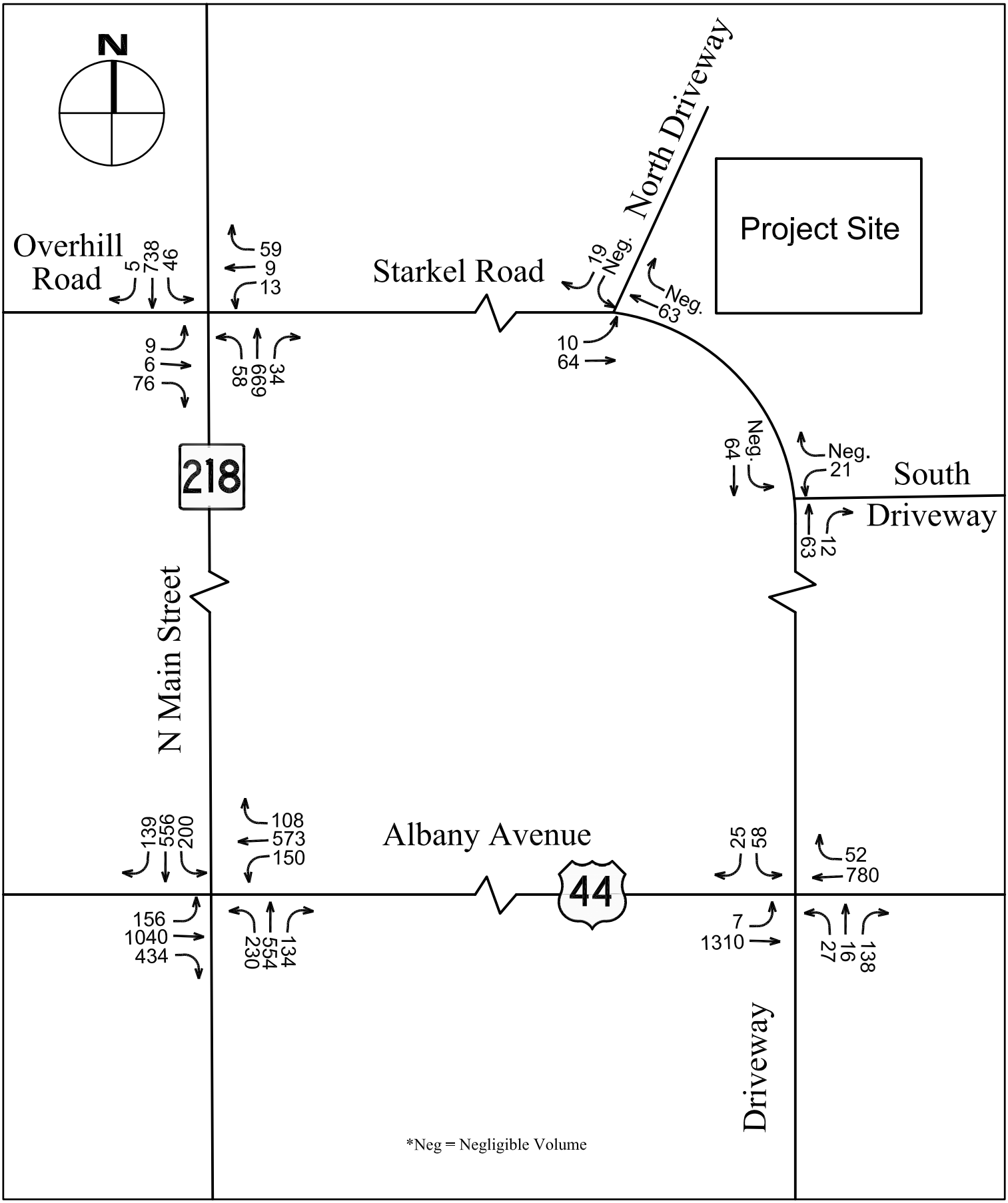
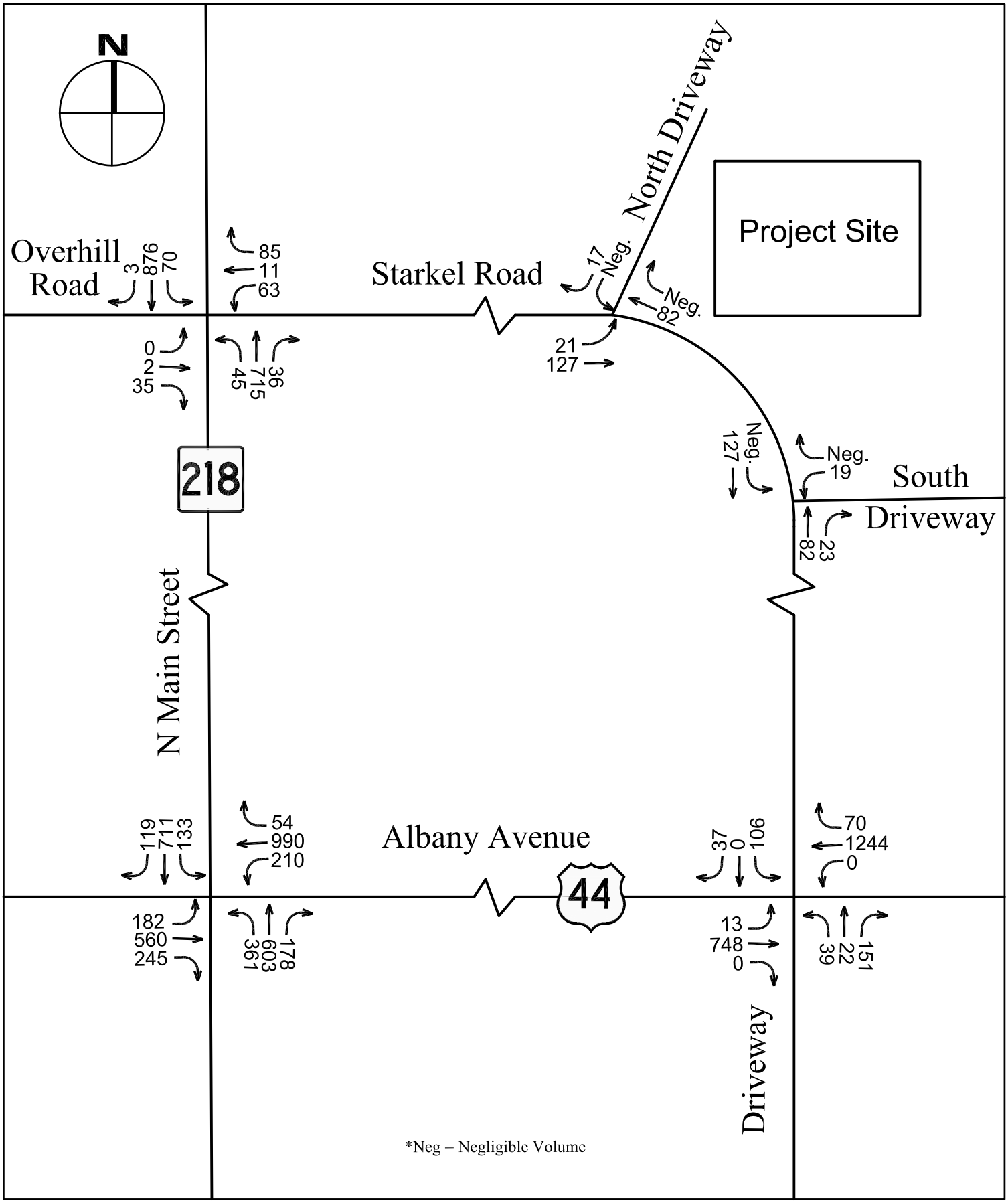


2024 Combined Weekday AM Peak Hour Traffic Volumes
West Hartford Fellowship Housing
West Hartford, CT

Figure 12
Not to Scale

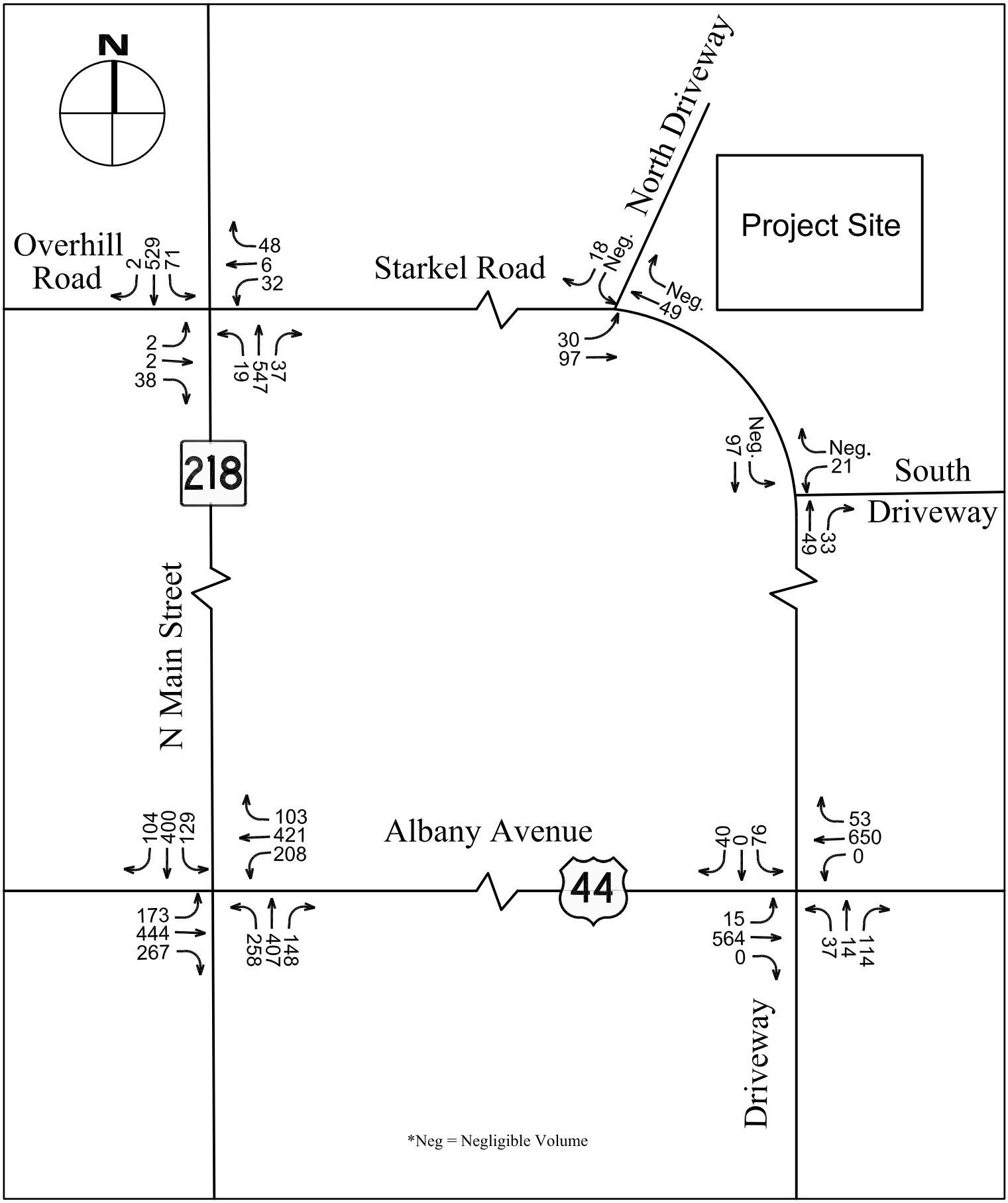
BSC GROUP



2024 Combined Weekday PM Peak Hour Traffic Volumes
West Hartford Fellowship Housing
West Hartford, CT

Figure 13
Not to Scale

BSC GROUP



2024 Combined Saturday Midday Peak Hour Traffic Volumes
West Hartford Fellowship Housing
West Hartford, CT

Figure 14
Not to Scale

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Chapter 3 Intersection Analysis

3.1 Capacity Analysis

Measuring existing traffic volumes and projecting future traffic volumes quantifies traffic flow within a study area. To assess quality of flow, capacity analyses were conducted at study area intersections for the Existing, Background, and Combined Conditions. The capacity analyses provide a standardized indication of the ability of the intersections to accommodate traffic demands placed upon them.

3.1.1 Levels of Service Criteria

A primary result of capacity analyses is the assignment of Levels of Service (LOS) to traffic facilities under various traffic flow conditions. Analyses were conducted using methods defined in the Highway Capacity Manual 2000 (TRB, 2000) for signalized and unsignalized intersections. The concept of Level of Service is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists.

A Level of Service definition generally describes these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. In so doing, Level of Service provides an index to quality of traffic flow.

Six Levels of Service are defined for each type of facility. They are given letter designations, from A to F, with LOS A representing the best operating conditions and LOS F representing the worst. The Level of Service of a traffic facility is a function of traffic flows placed upon it, thus an intersection may operate at a wide range of Levels of Service, depending on time of day, day of week, or period of year.

The average delay per vehicle approaching an intersection is used to quantify the Level of Service at a particular intersection. This is discussed briefly below, and LOS designations are defined in Table 3.

Table 3
Level of Service Designations

Category	Delay (sec/veh)	
	Unsignalized	Signalized
LOS A	0.0 – 10.0	0.0 – 10.0
LOS B	10.1 – 15.0	10.1 – 20.0
LOS C	15.1 – 25.0	20.1 – 35.0
LOS D	25.1 – 35.0	35.1 – 55.0
LOS E	35.1 – 50.0	55.1 – 80.0
LOS F	50.1 +	80.1 +

Source: Transportation Research Board, *Highway Capacity Manual*, National Research Council, 2010.

Average delay measures the mean stopped delay experienced by vehicles entering an intersection during the peak hour period. Average delay is measured for each individual turning movement that must yield the right of way, and for the intersection as a whole (including through vehicles that experience no delay).

3.2 Operating Conditions

The results of the capacity analysis for the study area intersections evaluated are summarized below. The Synchro (Version 10) traffic analysis software package was employed to evaluate operating conditions at the unsignalized intersections. This software uses methodology based on the Highway Capacity Manual (2000 edition) to conduct the analyses, and is accepted for use by ConnDOT. The intersection capacity analysis worksheets are provided in the Appendix.

The results of the capacity analysis for the study intersections, including average delays, LOS, volume-to-capacity (v/c) ratios, and 95th percentile queue lengths, are summarized below in Tables 4 through 6.

Table 4
Traffic Operations Analysis Summary – Weekday Morning Peak Hour

	2019 Existing					2024 Background					2024 Combined				
Movement	Delay	LOS	v/c	50th Queue[4]	95th Queue	Delay	LOS	v/c	50th Queue[4]	95th Queue	Delay	LOS	v/c	50th Queue[4]	95th Queue
SIGNALIZED INTERSECTIONS															
Albany Avenue/North Main Street															
Albany Avenue EB L	63.2	E	0.74	137	2319	65.5	E	0.76	142	226	65.6	E	0.76	143	227
Albany Avenue EB T	71.2	E	1.01	~540	#705	85.9	F	1.06	~581	#738	88.3	F	1.06	~584	#740
Albany Avenue EB R	40.1	D	0.60	162	291	42.4	D	0.63	179	311	42.7	D	0.63	180	311
Albany Avenue WB L	68.0	E	0.78	131	211	70.8	E	0.79	136	217	70.5	E	0.79	138	218
Albany Avenue WB T	36.8	D	0.58	232	308	38.3	D	0.60	244	318	38.5	D	0.61	245	319
Albany Avenue WB R	30.6	C	0.09	6	51	31.6	C	0.10	9	55	31.7	C	0.10	9	55
North Main Street NB L	70.7	E	0.86	199	#330	73.8	E	0.87	206	#345	74.4	E	0.87	206	#345
North Main Street NB T/R	60.4	E	0.91	306	#461	62.0	E	0.92	321	#482	61.7	E	0.92	324	#485
North Main Street SB L	68.0	E	0.81	167	263	69.7	E	0.82	173	270	70.2	E	0.82	173	270
North Main Street SB T	48.4	D	0.74	234	320	48.8	D	0.75	246	33	48.8	D	0.75	247	333
North Main Street SB R	38.6	D	0.09	0	56	38.7	D	0.10	0	57	38.7	D	0.10	0	57
Overall	***56.2***	***E***	***0.95***			***61.0***	***E***	***0.97***			***61.7***	***E***	***0.98***		
Albany Avenue/Starkel Road/ Plaza Driveway															
Albany Avenue EB L/T	5.7	A	0.56	120	187	5.9	A	0.57	126	198	6.0	A	0.58	127	202
Albany Avebue WB T/R	4.2	A	0.35	61	96	4.3	A	0.36	63	101	4.3	A	0.36	63	103
Plaza Driveway NB L/T	29.7	C	0.19	19	47	29.7	C	0.19	19	48	29.6	C	0.19	19	48
Plaza Driveway NB R	29.2	C	0.09	0	47	29.2	C	0.09	0	47	29.2	C	0.09	0	47
Starkel Road SB L	31.0	C	0.41	29	60	31.0	C	0.41	30	61	31.1	C	0.43	32	63
Starkel Road SB R	28.9	C	0.02	0	0	28.9	C	0.02	0	0	28.9	C	0.02	0	0
Overall	***7.8***	***A***	***0.57***			***7.9***	***A***	***0.59***			***8.1***	***A***	***0.59***		
North Main Street/Starkel Road/ Overhill Road															
Overhill Road EB L/T/R	26.0	C	0.17	7	38	25.8	C	0.17	7	38	25.5	C	0.17	7	38
Starkel Road WB L/T/R	26.0	C	0.18	8	35	25.8	C	0.18	8	35	25.7	C	0.21	10	38
North Main Street NB L/T/R	8.3	A	0.72	135	215	9.1	A	0.75	144	235	9.3	A	0.75	145	236
North Main Street SB L/T/R	8.4	A	0.73	146	214	9.1	A	0.76	156	231	9.3	A	0.76	157	232
Overall	***10.2***	***B***	***0.71***			***10.8***	***B***	***0.74***			***11.0***	***B***	***0.74***		
UNSIGNALIZED INTERSECTIONS															
Starkel Road/South Driveway															
Driveway WB L/R											9.4	A	0.03	--	3
Starkel Road NB T/R											0.0	A	0.00	--	0
Starkel Road SB L/T											7.4	A	0.00	--	0
Starkel Road/North Driveway															
Starkel Road EB L/T											7.4	A	0.01	--	0
Starkel Road WB T/R											0.0	A	0.00	--	0
Driveway SB L/R											8.7	A	0.02	--	3

1 Delay measured in seconds per vehicle
2 Volume to capacity ratio
3 95th percentile queue, measured in feet
4 50th percentile queue, measured in feet

Table 5
Traffic Operations Analysis Summary – Weekday Evening Peak Hour

	2019 Existing					2024 Background					2024 Combined				
Movement	Delay	LOS	v/c	50th Queue[4]	95th Queue	Delay	LOS	v/c	50th Queue[4]	95th Queue	Delay	LOS	v/c	50th Queue[4]	95th Queue
SIGNALIZED INTERSECTIONS															
Albany Avenue/North Main Street															
Albany Avenue EB L	75.9	E	0.83	178	#270	78.7	E	0.84	184	#281	79.2	E	0.85	186	#285
Albany Avenue EB T	41.8	D	0.59	255	298	42.8	D	0.61	264	307	42.9	D	0.61	265	308
Albany Avenue EB R	34.9	C	0.17	0	52	35.6	D	0.19	4	56	35.7	D	0.19	5	57
Albany Avenue WB L	83.8	F	0.87	179	#304	85.6	F	0.88	185	#317	86.3	F	0.89	186	#318
Albany Avenue WB T	65.5	E	0.91	441	#567	61.9	E	0.94	459	#595	62.4	E	0.95	461	#597
Albany Avenue WB R	33.2	C	0.03	0	3	33.6	C	0.03	0	4	33.7	C	0.03	0	4
North Main Street NB L	154.6	F	1.16	~412	#615	171.5	F	1.20	~434	#641	173.1	F	1.21	~434	#641
North Main Street NB T/R	49.6	D	0.82	355	#515	51.8	D	0.85	371	#547	52.3	D	0.86	373	#550
North Main Street SB L	68.6	E	0.73	121	186	69.7	E	0.74	124	190	69.4	E	0.73	124	190
North Main Street SB T	71.9	E	0.95	341	#462	75.9	E	0.97	354	#484	75.9	E	0.97	355	#486
North Main Street SB R	41.8	D	0.11	11	65	41.9	D	0.12	13	68	41.9	D	0.12	14	70
Overall	***64.5***	***E***	***0.97***			***68.5***	***E***	***1.00***			***68.9***	***E***	***1.00***		
Albany Avenue/Starkel Road/ Plaza Driveway															
Albany Avenue EB L/T	5.5	A	0.42	77	113	5.7	A	0.43	82	117	5.8	A	0.44	85	119
Albany Avebue WB T/R	6.7	A	0.56	130	233	6.9	A	0.58	140	244	7.0	A	0.58	142	245
Plaza Driveway NB L/T	27.2	C	0.24	28	58	27.2	C	0.25	29	59	27.1	C	0.24	29	59
Plaza Driveway NB R	26.5	C	0.11	0	41	26.5	C	0.11	0	41	26.4	C	0.11	0	41
Starkel Road SB L	32.0	C	0.60	53	91	32.6	C	0.62	55	94	32.9	C	0.63	57	96
Starkel Road SB R	26.1	C	0.03	0	2	26.1	C	0.03	0	4	26.0	C	0.03	0	5
Overall	***9.5***	***A***	***0.61***			***9.7***	***A***	***0.63***			***9.9***	***A***	***0.63***		
North Main Street/Starkel Road/ Overhill Road															
Overhill Road EB L/T/R	21.0	C	0.04	1	17	20.9	C	0.04	1	18	20.7	C	0.04	1	18
Starkel Road WB L/T/R	24.9	C	0.57	42	84	25.2	C	0.58	44	86	25.5	C	0.60	47	90
North Main Street NB L/T/R	9.6	A	0.71	137	341	10.5	B	0.74	148	#406	11.0	B	0.75	155	#474
North Main Street SB L/T/R	17.5	B	0.88	218	#607	21.1	C	0.92	242	#643	23.6	C	0.93	255	#657
Overall	***15.1***	***B***	***0.90***			***17.2***	***B***	***0.93***			***18.7***	***B***	***0.94***		
UNSIGNALIZED INTERSECTIONS															
Starkel Road/South Driveway															
Driveway WB L/R											9.9	A	0.03	--	3
Starkel Road NB T/R											0.0	A	0.00	--	0
Starkel Road SB L/T											7.4	A	0.00	--	0
Starkel Road/North Driveway															
Starkel Road EB L/T											7.4	A	0.02	--	0
Starkel Road WB T/R											0.0	A	0.00	--	0
Driveway SB L/R											8.9	A	0.02	--	3

1 Delay measured in seconds per vehicle
2 Volume to capacity ratio
3 95th percentile queue, measured in feet
4 50th percentile queue, measured in feet

Table 6
Traffic Operations Analysis Summary – Saturday Midday Peak Hour

Movement	2019 Existing					2024 Background					2024 Combined				
	Delay	LOS	v/c	50th Queue[4]	95th Queue	Delay	LOS	v/c	50th Queue[4]	95th Queue	Delay	LOS	v/c	50th Queue[4]	95th Queue
SIGNALIZED INTERSECTIONS															
Albany Avenue/North Main Street															
Albany Avenue EB L	58.1	E	0.71	137	227	60.2	E	0.73	143	236	60.6	E	0.74	145	237
Albany Avenue EB T	30.7	C	0.38	148	216	31.8	C	0.40	156	224	32.0	C	0.40	158	226
Albany Avenue EB R	28.3	C	0.17	0	64	29.1	C	0.18	0	65	29.3	C	0.18	0	65
Albany Avenue WB L	68.5	E	0.84	179	#312	69.7	E	0.85	188	#328	70.7	E	0.86	190	#330
Albany Avenue WB T	28.8	C	0.37	147	208	29.6	C	0.38	156	215	29.7	C	0.39	158	217
Albany Avenue WB R	25.5	C	0.07	0	39	26.1	C	0.08	0	39	26.3	C	0.08	0	39
North Main Street NB L	65.3	E	0.85	213	#363	67.1	E	0.87	222	#383	67.6	E	0.87	223	#383
North Main Street NB T/R	48.6	D	0.77	220	299	49.4	D	0.79	230	312	49.5	D	0.79	232	314
North Main Street SB L	59.0	E	0.68	100	170	60.4	E	0.70	105	174	60.8	E	0.70	105	174
North Main Street SB T	53.6	D	0.75	162	218	55.0	E	0.76	168	225	54.9	D	0.76	170	225
North Main Street SB R	43.6	D	0.06	0	48	44.1	D	0.07	0	50	44.1	D	0.07	0	50
Overall	***44.8***	***D***	***0.67***			***46.0***	***D***	***0.68***			***46.2***	***D***	***0.69***		
Albany Avenue/Starkel Road/ Plaza Driveway															
Albany Avenue EB L/T	4.4	A	0.31	48	68	4.5	A	0.32	50	72	4.5	A	0.32	51	74
Albany Avebue WB T/R	4.3	A	0.29	47	83	4.4	A	0.30	49	87	4.4	A	0.30	50	89
Plaza Driveway NB L/T	27.5	C	0.23	23	51	27.5	C	0.23	24	52	27.5	C	0.23	24	52
Plaza Driveway NB R	26.9	C	0.08	0	38	26.8	C	0.08	0	38	26.8	C	0.08	0	38
Starkel Road SB L	29.1	C	0.48	37	70	29.2	C	0.49	39	71	29.3	C	0.51	40	73
Starkel Road SB R	26.6	C	0.03	0	5	26.6	C	0.03	0	5	26.6	C	0.03	0	8
Overall	***8.5***	***A***	***0.36***			***8.6***	***A***	***0.37***			***8.7***	***A***	***0.38***		
North Main Street/Starkel Road/ Overhill Road															
Overhill Road EB L/T/R	23.8	C	0.01	2	21	23.7	C	0.07	2	22	23.7	C	0.07	2	22
Starkel Road WB L/T/R	24.5	C	0.27	11	44	24.5	C	0.27	11	45	24.6	C	0.30	12	48
North Main Street NB L/T/R	5.3	A	0.57	93	130	5.6	A	0.59	98	138	5.6	A	0.60	99	145
North Main Street SB L/T/R	9.0	A	0.76	149	133	10.1	B	0.79	161	143	10.7	B	0.80	167	152
Overall	***8.6***	***A***	***0.76***			***9.3***	***A***	***0.79***			***9.7***	***A***	***0.81***		
UNSIGNALIZED INTERSECTIONS															
Starkel Road/South Driveway															
Driveway WB L/R											9.5	A	0.03	--	3
Starkel Road NB T/R											0.0	A	0.00	--	0
Starkel Road SB L/T											7.4	A	0.00	--	0
Starkel Road/North Driveway															
Starkel Road EB L/T											7.4	A	0.02	--	3
Starkel Road WB T/R											0.0	A	0.00	--	0
Driveway SB L/R											8.7	A	0.02	--	3

1 Delay measured in seconds per vehicle
2 Volume to capacity ratio
3 95th percentile queue, measured in feet
4 50th percentile queue, measured in feet

Albany Avenue/North Main Street

This intersection currently operates at LOS E during the weekday morning and evening peak hours and LOS D during the Saturday midday peak hour. These operating conditions are expected to continue under the Background and Combined conditions. Certain movements experience slightly longer delays, but overall the intersection will maintain the baseline peak hour Levels of Service.

Albany Avenue/Starkel Road/Plaza Driveway

This intersection currently operates at LOS A during all three peak analysis periods and is expected to continue to operate at LOS A under the Background and Combined conditions. The major movements along Albany Avenue operate at LOS A and the side street movements on Starkel Road and the driveway operate at LOS C during all three peak analysis periods.

North Main Street/Starkel Road/Overhill Road

This intersection currently operates at LOS B during the weekday morning and evening peak hours and LOS A during the Saturday midday peak hour and is expected to continue to operate at these levels of service under the Background and Combined conditions.

Starkel Road/Site Driveways

The movements at the site driveways are expected to operate at LOS A during all three peak analysis periods. Traffic volume levels along Starkel Road and the site driveways are relatively low and allow sufficient gaps to allow all movements to operate with minimal delay and queuing.

Based on the traffic operations analysis and the minimal amount of traffic volume added to the roadway network, the Project is not expected to have a significant impact upon the roadway network.

Chapter 4 Summary and Conclusions

This Traffic Impact Study has been prepared for the proposed redevelopment of the West Hartford Fellowship Housing residential complex located on Starkel Road in West Hartford. The Project will consist of 308 age-restricted residential units, which represents an increase of 90 units when compared to the existing facility.

Using standard industry practices, this Traffic Impact Study has reviewed existing traffic and roadway conditions in the vicinity of the site; identified specific developments and determined background traffic growth for the study area; and estimated and distributed the additional vehicular traffic that will be generated by the Project.

This study has shown that:

- The proposed Project is expected to generate approximately 19 new vehicle trips (7 entering, 12 exiting) during the weekday morning peak hour, 25 vehicle trips (14 entering, 11 exiting) during the weekday afternoon peak hour, and 32 trips (20 entering, 12 exiting) during the Saturday midday peak hour when compared with the 2024 Background condition.
- On an average weekday, the Project will generate approximately 1,140 trips. This represents an increase of 352 trips when compared to the existing conditions.
- On a Saturday, the Project will generate approximately 995 trips, which represents an increase of 307 trips when compared to the existing conditions.
- Compared to the Background condition, the study area intersections serving the Project are expected to operate at the same LOS under the Combined condition.
- Both required stopping sight distance and recommended intersection sight distances are met at both driveway locations.

In conclusion, it is the opinion of BSC Group that the vehicle trips generated by the proposed expansion of the Project can be accommodated at the study area intersections and roadways without the need for additional mitigation.